

REMARKS

Claims 3-4 and 13-14 have been amended. The indefinite article “An” at the beginning of each of claims 3-4 and 13-14 have been replaced with “The” and the indefinite article “a” which appears before “light-emitting layer” on the second line of each of claims 3-4 and 13-14 has been replaced with “the.” In addition, the phrase “as claimed in claim 1” has been deleted where it appears after the phrase “light-emitting layer” and inserted after the term “device” in each of claims 3-4 and 13-14.

The specification has been amended at page 2. Specifically, the phrase “extra number” has been deleted on page 2, line 9.

Entry of the amendments is respectfully requested.

Review and reconsiderations on the merits are requested.

Claims 1-20 were rejected under 35 U.S.C. § 112, first paragraph. The Examiner considered that defining the two organic compounds by the relationship between triplet and singlet states alone would not enable a person skilled in the art to make and use the invention in the absence of undue experimentation. Two literature references (Baldo et al. and Kobayashi et al.) were cited in support of the rejection.

Applicants traverse, and respectfully request the Examiner to reconsider in view of the following remarks.

The energy levels of the excited triplet state and singlet states can be relatively determined, and the specification at pages 19-22 instructs how to select combinations of compounds meeting the claimed energy level relationship.

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Furthermore, the present invention requires the presence of an excited triplet state of the second compound with a higher energy level than the energy level of the lowest excited singlet state of the second compound between the lowest excited triplet state of the first compound and the lowest excited state of the second compound. The Examiner alleged that undue experimentation would be needed to test numerous organic compounds in order to determine what combinations of compounds meet the claimed energy relationship. However, this is readily accomplished, in the absence of undue experimentation, by first determining the second compound and then choosing the first compound having the lowest excited triplet state with a higher energy level than the energy level of the excited triplet state (higher than that of the lowest excited singlet state) of the second compound.

Although Kobayashi et al. teaches that energy levels differ depending on the conditions (e.g., in a solution or in crystal), according to the present invention, the choice of compounds is based on energy levels in the condition under which the compounds are used. Thus, changes in energy levels of a compound in going from one condition to another do not necessarily have to be taken into consideration.

In view of the above, it is respectfully submitted that the specification is fully enabling, and withdrawal of the foregoing rejection under 35 U.S.C. § 112, first paragraph, is respectfully requested.

In response to the rejection under 35 U.S.C. § 112, second paragraph, claims 3, 4, 13 and 14 have been amended as suggested by the Examiner. Withdrawal is respectfully requested.

Claims 1-20 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Baldo et al. *Nature*, Vol. 403, pp. 750-753 (February 17, 2000).

Baldo et al. was cited as teaching an electroluminescent device with a light-emitting layer comprising CBP, Ir(ppy)₃ and DCM2. The Examiner considered that Ir(ppy)₃ and DCM2 meet the energy level relationships of the claimed first and second organic compounds, respectively, and that CBP meets the limitations of the third organic compound as recited in claims 2 and 9.

Applicants traverse, and respectfully request the Examiner to reconsider in view of the following remarks.

In the present invention, energy transfer is from the excited triplet state of the first compound to the excited triplet state of the second compound.

To the contrary, Baldo et al. discloses a light-emitting device having low emission quantum efficiency. In the device of Baldo et al., energy transfer is from the excited triplet state of the first compound to the excited singlet state of the second compound.

Furthermore, Baldo et al. is silent as to the relationship between the lowest excited triplet state of the first compound and the lowest excited singlet of the second compound. Thus, Baldo et al. fails to disclose the claimed light emission mechanism of the present invention, and the Examiner has not set forth anything in the prior art which would lead one of ordinary skill to modify Baldo et al. to achieve the present invention.

Particularly, Baldo et al., which only discloses energy transfer to the excited singlet state of a fluorescent dye, does not teach or suggest the present invention in which improvement in light emission efficiency is obtained by energy transfer proceeding from the excited triplet state of the first compound to the excited triplet state of the second compound, and further to the excited singlet state of the second compound.

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In view of the above, it is respectfully submitted that claims 1-20 are patentable over Baldo et al., and withdraw of the foregoing rejection under 35 U.S.C. § 103(a) is respectfully requested.

Withdrawal of all of the rejections and allowance of claims 1-20 is earnestly solicited.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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CUSTOMER NUMBER

Date: March 3, 2004